PATENT ABSTRACTS OF JAPAN

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(54) COMPOSITION FOR ORAL CAVITY

(57)Abstract:
PROBLEM TO BE SOLVED: To obtain a composition for oral cavities, good in the use feeling and capable of effectively removing bacterial plaques causing dental caries, periodontal diseases, etc.
SOLUTION: This composition for oral cavities contains granulate cellulose having an average particle diameter of 50-1,000μm, preferably 70-700μm, in a dry state and obtained by granulating water-insoluble cellulose powder having an average particle diameter of 1-50μm in an amount of 0.2-20wt.%, preferably 0.5-10wt.%. The composition further contains conventional abrasive agent, binder, surfactant, medicinally active ingredient, perfume, pigment, etc., and may be prepared into a tooth paste, a liquid dentifrice, a gingival massage cream, a paste local coating agent, etc. Pulp powder, insoluble powder cellulose, powder α-cellulose, fine crystalline cellulose, pulp, chemically treated insoluble cellulose or other insoluble cellulose substances are used as a raw material for water- insoluble particulate cellulose, and can be granulated by a conventional method.

CLAIMS

[Claim(s)]
[Claim 1]A constituent for the mouths which blends granulation cellulose with a mean particle diameter of 50-1000 micrometers obtained by corning cellulose powder with an insoluble to water mean particle diameter of 1-50 micrometers 0.2 to 20% of the weight, and is characterized by things.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]Insoluble granulation cellulose is blended with water in this

invention.
Therefore, a using feeling is good and is related with the constituent for the mouths from which the dental plaque used as causes, such as dental caries and periodontosis, is effectively removable.

[0002]
[Description of the Prior Art]It is known that the cause of the dental caries and periodontosis which are the two major diseases in the mouth will be based on a dental plaque from the former. Then, the dentifrices etc. which blended a germicide, a dental plaque dialytic ferment, etc. for the purpose of removal of a dental plaque or formation control of a dental plaque are developed variously, and are introduced into the commercial scene.
[0003]However, it was difficult to remove enough the gap of a gear tooth and a gear tooth, and the dental plaque in a rill part, and **** and the gingival pocket only by brushing by the toothbrush which uses together with dentifrices and is to the foundations of dental plaque removal. Although there were dental plaque removing tools, such as dental floss and a water pick, in addition to a toothbrush, in all, there was a problem in usability and a removing effect.
[0004]On the other hand, a granule and a capsule are blended with the constituent for the mouths, and the proposal about the constituent for the mouths which gave various functions is made variously. For example, the thing [coloring matter is blended with granulation, and the phanerosis of the coloring matter is carried out at the time of brushing, and] aiming at the indicator at the time of the end of toothbrushing (JP,60-16913,A), The thing aiming at a change clever [under toothbrushing] which mixes the granular taste ingredient and granular toothbrushing base which were covered with the coating substance (JP,62-116505,A), what blended medicinal properties with granulation and attained stabilization of drugs (JP,48-19738,A.) There are 49-132249, 55-153709, JP,3-271215,A, a thing (JP,1-299211,A, 4-243816 gazette) further aiming at dental plaque removal, etc.
[0005]However, it is not what can satisfy the grade of dental plaque removal within the mouth enough also in which method of the above, And depending on the granulation to blend, sense of incongruity, such as powderiness under use of dentifrices and after use and ZARATSUKI, may arise, and development of the constituent for the mouths which has the further high dental plaque removing effect and a good using feeling is desired.
[0006]In this invention, it was made in view of the above-mentioned situation.
Therefore, a using feeling is good and aims at providing the constituent for the mouths from which the dental plaque used as causes, such as dental caries and periodontosis, is effectively removable.

[0007]
[The means for solving a technical problem and an embodiment of the invention] As a result of repeating examination wholeheartedly to achieve the above objects, by blending with the constituent for the mouths the granulation cellulose which corns cellulose powder insoluble to water, this invention person could remove the dental plaque effectively with the cleaning power, and did the knowledge of a using feeling becoming good.

[0008]Namely, by the mean particle diameter in dryness corning a cellulose particle with an insoluble to water mean particle diameter of 1-50 micrometers to 50-1000 micrometers, and blending this granulation cellulose at 0.2 to 20% of the weight of a rate to the full weight of a constituent, The dental plaque used as causes, such as dental caries and periodontosis, is effectively removable from the cleaning power which this granulation cellulose has, The sense of incongruity by the powderiness and ZARATSUKI which are produced when it does not corn but cellulose powder with protean powder is used is cancelable, Unpleasant using feelings, such as foreign body sensation when cellulose powder becomes a major diameter too much, were stopped, the inner-mouth feel under use and after use became good, and also granulation cellulose also has the adsorption treatment effect of the dirt in the mouth, or ozostomia, carries out the knowledge of excelling also in safety, and came to make this invention.
[0009]lessening wear of a tooth also proposes these people by blending cellulose powder with an insoluble to water mean particle diameter of 5-1000 micrometers with the constituent for the mouths -- **** (JP,55-98111,A). Even if it uses non-granulation cellulose powder so that clearly from the result of the experiment mentioned later, dental plaque removal performance is not enough, and if the particle diameter of cellulose powder becomes large as moreover mentioned above, a using feeling will fall. On the other hand, even if the granulation cellulose powder according to this invention has and major-diameter-izes outstanding dental plaque removing ability, it gives a good using feeling.
[0010]Therefore, a constituent for the mouths which this invention blends granulation cellulose with a mean particle diameter of 50-1000 micrometers obtained by corning cellulose powder with an insoluble to water mean particle diameter of 1-50 micrometers 0.2 to 20% of the weight, and is characterized by things is provided.
[0011]Hereafter, if it explains in detail, a constituent for the mouths of this invention comes to blend insoluble granulation cellulose with water, and it can be conveniently used [per this invention and also] for it as tooth paste, liquefied toothbrushing, and fluid toothbrushing, gum massage cream, paste state partial paint, etc.
[0012]Although one sort of what carried out the chemical treatment of pulp powder, insoluble powdered cellulose, powder alpha cellulose, microcrystalline cellulose, pulp, and the cellulose to water, and insolubilized them as a raw material of insoluble granulation cellulose in it here, and other insoluble cellulose substances, or two sorts or more are used suitably, It is required for the mean particle diameter to use 1-50 micrometers of 10-40-micrometer things [3-45 micrometers of] still more preferably preferably.
[0013]Granulation cellulose insoluble to water of this invention can manufacture the above-mentioned raw material using a publicly known granulation method, for example, an agitation granulation machine, a fluidized bed granulator, an agitating fluidized bed granulator, etc., and it can be used for it combining one sort of these granular material, or two sorts or more. Namely, the above-mentioned cellulose raw material is required in order for corning to a fixed particle size to demonstrate an effect which was excellent in this invention, If what carried out the chemical treatment of pulp powder, insoluble powdered cellulose, powder alpha cellulose, microcrystalline cellulose, pulp, and cellulose which are granulation cellulose raw materials, and insolubilized them is not corned but it uses for a constituent for the mouths with protean powder, A dental plaque

removing effect is inferior, and a problem arises in a using feeling -- powderiness etc. are sensed.

[0014]As for especially a particle size of the above-mentioned granulation cellulose, it is preferred that 50-1000 micrometers of mean particle diameter are 70-700 micrometers at dryness. When mean particle diameter is smaller than 50 micrometers, a dental plaque removing effect is inferior, when larger than 1000 micrometers and it blends with a constituent for the mouths on the other hand, foreign body sensation is produced, and gum is damaged.

[0015]Especially a blending ratio of granulation cellulose may be 0.5 to 10 % of the weight 0.2 to 20% of the weight to the whole quantity of a constituent for the mouths. Unless it fills a blending ratio to 0.2% of the weight, an effect of this invention cannot fully demonstrate, but if it exceeds 20 % of the weight, a feeling of ZARATSUKI increases and it may have an adverse effect on a using feeling.

[0016]An ingredient currently used for the usual constituent for the mouths can be used for a constituent for the mouths of this invention as ingredients other than the above, and an addition of these ingredients can be made a regular amount in the range which does not bar an effect of this invention.

[0017]For example, although only insoluble granulation cellulose may be used for the above-mentioned water as abrasive soap of toothbrushing, If needed Dibasic calcium phosphate and 2 hydrate and anhydrate, the 1st calcium phosphate, Tribasic calcium phosphate, calcium carbonate, calcium pyrophosphate, aluminium hydroxide, Alumina, a silicic acid anhydride, aluminum silicate, insoluble sodium metaphosphate, one sort, such as the 3rd magnesium phosphate, magnesium carbonate, calcium sulfate, bentonite, zirconium silicate, poly methyl methacrylate, and other synthetic resins, or two sorts or more -- 5- of the whole constituent -- it can blend 10 to 50% especially 60%.

[0018]In the case of paste state constituents, such as tooth paste, As a binder, carrageenin, carboxymethylcellulose sodium, Cellulosics, such as methyl cellulose and hydroxyethyl cellulose, Gums, such as xanthan gum, tragacanth gum, karaya gum, and gum arabic, One sort, such as inorganic binders, such as synthetic binders, such as polyvinyl alcohol, sodium polyacrylate, a carboxyvinyl polymer, and a polyvinyl pyrrolidone, silica gel, aluminum silica gel, veegum, and RAPONAITO, or two sorts or more can be blended.

[0019]For manufacture of paste state, such as toothbrushing, or liquefied dentifrices. One sort, such as sorbitol, glycerin, ethylene glycol, propylene glycol, a 1,3-butylene glycol, a polyethylene glycol, a polypropylene glycol, xylitol, maltitol, and a RAKUCHI toll, or two sorts or more can be blended as a viscous agent.

[0020]In a constituent for the mouths of this invention, menthol, anethole, carvone, eugenol, Limonene, n-decyl alcohol, citronellol, alpha-terpineol, Citronellyl acetate, cineol, linalool, ethyl linalool, WANIRIN, Timor, spearmint oil, peppermint oil, lemon oil, Orange oil, sage oil, rosemary oil, cinnamon oil, pimento oil, Katsura leaf oil, It is independent, or perfume, such as a beefsteak plant oil, wintergreen oil, clove oil, and eucalyptus oil, is combined, and can blend it, and also. saccharin sodium, stevioside, neohesperidyl dihydrochalcone, glycyrrhizin, perilla rutin, thaumatin, and asparagus -- sweetners, such as chill phenylalanine methyl ester and p-methoxy thinner MIKKU aldehyde, etc. can be blended.

[0021]A dextranase, mutanase, a lysozyme, amylase, protease, Enzymes, such as lytic enzyme and super-oxide dismutase, sodium monofluorophosphate, Alkaline metal

monofluoro phosphate and sodium fluorides, such as potassium mono-fluorophosphorate, Fluorides, such as the 1st tin of fluoridation, tranexamic acid, epsilon aminocaproic acid, Aluminum KURORU hydroxyallantoin, a dihydrocholestanol, Glycyrrhizin acids, glycyrrhetinic acid, bisabolol, isopropylmethyl phenol, One sort of active principles, such as glycerophosphate, chlorophyll, cupric gluconate, sodium chloride, a water-soluble inorganic-phosphoric-acid compound, triclosan, cetyl pyridinium chloride, a benzalkonium chloride, and benzethonium chloride, or two sorts or more can be blended.
[0022]As a surface-active agent, an anionic surface active agent, a nonionic surface active agent, and an amphionic surface active agent are used.
[0023]As an anionic surface active agent, specifically Sodium alkylsulfate, such as sodium lauryl sulfate and myristic acid sodium sulfate, N-acyl ZARUKOSHIN acid sodium, such as N-lauroyl ZARUKOSHIN acid sodium and N-myristoyl ZARUKOSHIN acid sodium, Sodium dodecylbenzenesulfonate, hydrogenation coconut fatty acid monoglyceride monosodium sulfate, N-acyl glutamate, such as sodium lauryl sulfosulfate and N-palmitoyl sodium glutamate, N-methyl-N-acyl taurine sodium, N-methyl-N-acyl alanine sodium, alpha olefin sulfone sodium, etc. are used.
[0024]As a nonionic surface active agent, sucrose fatty acid ester, malt sugar fatty acid ester, Sugar fatty acid ester, such as lactose fatty acid ester, maltitol fatty acid ester, Sugar-alcohol fatty acid ester, such as RAKUCHI toll fatty acid ester, polyoxyethylene sorbitan monolaurate, Polyoxyethylene sorbitan fatty acid ester, such as polyoxyethylenesorbitan monostearate, Polyoxyethylene fatty acid ester, such as polyoxyethylene hydrogenated castor oil, Diethanolamide and myristic acid mono- ** lauric acid mono- ** Fatty acid diethanolamide, such as diethanolamide, A sorbitan fatty acid ester, polyoxyethylene higher alcohol ether, a polyoxyethylene polyoxypropylene copolymer, polyoxyethylene polyoxypropylene fatty acid ester, etc. are used.
[0025]As an amphionic surface active agent, N-lauryl diaminoethylglycine, N-alkyl diaminoethylglycines, such as N-millimeter SUCHIRUJI aminoethyl glycine, N-alkyl N-carboxymethyl ammonium betaine, 2-alkyl 1-hydroxyethyl imidazoline betaine sodium, etc. are used.
[0026]In this case, especially as a surface-active agent, an anionic surface active agent is preferred and sodium alkylsulfate, such as sodium lauryl sulfate, etc. are specifically preferred. in addition -- even if these surface-active agents use one of them independently and they use two or more sorts together, they do not interfere -- the loadings -- usually -- 0.01- of the whole constituent -- it is 0.05 to 3 % of the weight more preferably 5% of the weight.
[0027]Combination or coloring matter can dye various kinds of above-mentioned medicinal properties, perfume, etc. a constituent for the mouths in this invention at the above-mentioned granulation cellulose. In this case, although various certified colors are used as coloring matter, the red No. 2, the red No. 3, the red No. 226, the yellow No. 4, the yellow No. 5, the blue No. 1, the blue No. 2, the blue No. 201, the blue No. 204, etc. are used suitably, for example.
[0028]To a constituent for the mouths in this invention, pulp powder, insoluble powdered cellulose, powder alpha cellulose, microcrystalline cellulose, etc. can also be used together as powdered cellulose insoluble to water in the above-mentioned granulation cellulose.
[0029]

[Effect of the Invention]When the constituent for the mouths of this invention blended insoluble granulation cellulose with water, a using feeling is good and can remove effectively the dental plaque used as causes, such as dental caries and periodontosis.
[0030]
[Example]Although an example and a comparative example are shown and this invention is explained concretely hereafter, this invention is not restricted to the following example. Each % in each example is weight %.
[0031][Example of an experiment] The tooth paste of the following presentation was prepared and the using feeling and the dental plaque removing effect were evaluated in accordance with the following method. A result is shown in Table 1.
granulation cellulose or microcrystalline cellulose Quantity dibasic calcium phosphate and 2 hydrate shown in Table 1 30% dibasic calcium phosphate and anhydrate 5 glycerin 19 carboxymethyl cellulose 1.2 saccharin sodium 0.2 sodium lauryl sulfate . 1.3 perfume 1 water Balance 100%[0032]Valuation-method (1) using feeling: By five panels, brushing by a toothbrush was actually carried out using each above-mentioned dentifrices, and the using feeling under use and after use was judged in accordance with the following standard.
valuation-basis O:fitness **: of a feel in use -- usually -- x: -- **: from which **** of the inner mouth after bad use to Feel O: apply falls -- (2) dental-plaque removing effect: from which **** in which **** applied a little remains, and to x: apply does not fall -- with the dental plaque area before a toothbrushing start for an up-and-down jaw anterior-tooth part. The disclosing solution dyed the dental plaque area after the end of toothbrushing, dental plaque area was measured with the image analyzing device, and the dental plaque extraction ratio was computed from the following formula. The result was judged in accordance with the following standard.
[0033]
[Equation 1]

$$\text{歯垢除去率（%）} = \left(1 - \frac{\text{歯磨終了後の歯垢面積}}{\text{歯磨開始前の歯垢面積}}\right) \times 100$$

Valuation-basis O: The not less than 70% of dental-plaque extraction-ratio **:dental-plaque extraction ratio 40 - 69%x: 39% or less of a dental plaque extraction ratio [0034]
[Table 1]

	本発明品			比較品					
	1	2	3	1	2	3	4	5	6
粒状化セルロース粒径（μm）	500〔40〕	250〔25〕	150〔15〕	40〔6〕	1200〔40〕	500〔80〕	80〔0.7〕	−	−
粒状化セルロース配合量（%）	2	3	1	0.1	10	0.1	30	−	−
微結晶セルロース粉体（μm）	−	−	−	−	−	−	−	40	500
微結晶セルロース配合量（%）	−	−	−	−	−	−	−	2	−
使用中の感触	○	○	○	△	×	△	×	×	×
使用後の口中の感触	○	○	○	×	△	×	×	△	×
歯垢除去率	○	○	○	×	△	×	○	×	△

注：〔〕内は粒状化セルロースの造粒に用いたセルロースパウダー（結晶セルロースを使用）の平均粒径（μm）を示す（以下の実施例も同様）。

[0035][Example 1]
Granulation cellulose (mean particle diameter of 200 micrometers) [70 micrometers] 5% silicic acid anhydride 15 propylene glycol 3 sorbitol liquid 25 carboxymethyl cellulose 1 saccharin sodium 0.1 sodium lauryl sulfate 1.0 perfume 1.0 water Balance 100%[0036][Example 2]
Granulation cellulose (mean particle diameter of 250 micrometers) [80 micrometers] 3% aluminium hydroxide 35 propylene glycol 2 glycerin 20 carboxymethyl cellulose 1 tranexamic acid 0.01 saccharin sodium 0.1 sodium lauryl sulfate 0.5 perfume 0.5 water Balance 100%[0037][Example 3]
Granulation cellulose (mean particle diameter of 150 micrometers) [50 micrometers] 1% microcrystalline cellulose 1 dibasic calcium phosphate and 2 hydrate 40 glycerin 18 xanthan gum 0.5 sodium polyacrylate 0.8 saccharin sodium 0.2 sodium lauryl sulfate 1.0 perfume 0.8 water Balance 100%[0038][Example 4]
granulation cellulose (mean particle diameter of 300 micrometers) [90 micrometers] 2% dibasic calcium phosphate and 2 hydrate 30 dibasic calcium phosphate and anhydrate 5 glycerin 19 carboxymethyl cellulose 1.2 saccharin sodium 0.2 sodium lauryl sulfate 1.3 perfume 1 water Balance 100%[0039][Example 5]
Granulation cellulose (mean particle diameter of 100 micrometers) [30 micrometers] 1% silicic acid anhydride 16 propylene glycol 3 glycerin 24 sorbitol 50 xanthan gum 0.2 sodium polyacrylate 0.2 saccharin sodium 0.2 sodium lauryl sulfate 1.5 perfume 0.9 water Balance 100%[0040][Example 6]

Granulation cellulose (mean particle diameter of 300 micrometers) [50 micrometers] 3% sorbitol 10 ethanol 5 polyoxyethylene (60 mol) hydrogenated castor oil 0.1 sucrose monopalmitate 0.2 saccharin sodium 0.2 perfume 0.6 water Balance 100%[0041]As for the result of having evaluated the feel in use, the inner-mouth feel after use, and the dental plaque extraction ratio like the example of an experiment about the constituent of the above-mentioned example, all were O.

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(54)【発明の名称】　口腔用組成物

(57)【要約】
【解決課題】　水に不溶な平均粒径１～５０μｍのセルロース粉末を造粒することによって得られた平均粒径５０～１０００μｍの粒状化セルロースを０．２～２０重量%配合してなることを特徴とする口腔用組成物。
【効果】　使用感が良好でかつ、齲蝕・歯周病等の原因となる歯垢を効果的に除去することができる。